**Agile approach in project Management**

           Agile is an iterative model in which the entire process is sub-divided into small iterative cycles. One of the key concepts of Agile is ‘SCRUM’. Initially, a product backlog is created which contains user stories. Each user story is a point-based task that is created based on the demand from the clients. This product backlog is subdivided into different sprints to form sprint backlogs. The duration of each sprint is around 1 - 4 weeks. A sprint burndown chart is created to illustrate the work remaining in the sprint. It helps both team members and the scrum master to track the progress on daily basis.

           Each team in agile is a cross-functional and self-organizing group comprising of 4 – 11 members to stay flexible and productive. These team members work in collaboration to complete the tasks. Unlike other project teams, agile team members must be more adaptive and self-sufficient because they have to cope with the changing customer demands during the project. The team is structured as follows:

*Product Owner*: They are actively involved in the project to oversee the whole operation and provide timely feedback after every sprint. They relay customer demand to the project team and ensure that the team remains focused on those demands.

*Project Manager*: The project manager keeps the team members accountable, gives customer feedback from the product owner, and guides the team through the sprint.

*Scrum Master*: is a central figure within a project. His principal responsibility is to eliminate all the obstacles that might prevent the team from working efficiently.

*Developer team*: They work on the user stories in the sprint backlogs and complete all the tasks related to the development of the project.

The agile process is followed through a few recurring meetings or events, like the Daily Scrum (Standup), the Sprint Planning, the Review, and Retrospective meetings (the Sprint Retrospective). The Daily Scrum is a timeboxed meeting, during which the development team discusses the hindrances in the project and sets their daily goals accordingly to meet the timeline. After the sprint backlog is created, a sprint planning meeting is conducted to plan the work that is to be completed in that sprint. Everyone involved in the Sprint (a Product Owner, a Scrum Master, and a Development Team) participates in this event. The duration of the meeting is generally less than 8 hours. After the completion of the sprint, a sprint review meeting is conducted during which the team shows the work that is completed, any incomplete work is shifted to the next sprint accordingly. The whole team goes to retrospective meetings to reflect on their work during the Sprint. Participants discuss what went well or wrong, find ways to improve, and plan how to implement these positive changes. The Sprint Retrospective is held after the Review and before the next Sprint Planning.

Thus, the teams in agile are managed as follows:

* The tasks are ranked in the order of priority in the product backlog
* Scrum uses sprints of fixed duration where each sprint has predefined goals
* The spring planning meeting is conducted to discuss the working
* Daily scrum meeting is conducted to review the progress and ensure that the work is on track
* The sprint review meeting is conducted to discuss the results
* The above process is iterated for each sprint

**Predictive Approach in Project Management**

The predictive/waterfall model is a sequential model that takes the fundamental process activities of specification, development, validation, and evolution and represents them as separate process phases. These phases directly reflect the team's management and development activities:

System and Software Requirements: This is the initial phase of the project where the project requirements are outlined and defined in a document. This document is written from the user’s perspective and defines the objective of the application.

*Analysis:* In this phase, the team will work to determine the conditions to meet the project and studies the conflicting requirements.

*Design*: In this phase, the team establishes a solution concept based on the previously determined requirements, tasks, and strategies.

*Implementation:* In this phase, the product is developed. The result of this phase is an alpha-level product ready for testing.

*Testing:* The product is tested in this phase. This phase is iterated till the errors in the product are rectified.

*Operations and maintenance:* The product is deployed into the market and maintained.

Based on the above phases, the team is designed by assigning roles as per the project phases described above. The different roles are:

*Project Manager:* The main responsibility of the project manager is to ensure that the project is executing as per the plan. Their duties are delegating and team management

*Business Analyst:* They ensure that all the business requirements are considered and transformed into artifacts of the functional specification of the system.

*Developers:* They are responsible for the implementation of the project.

Testers: Their task is to identify bugs and defects within the product – prompting its possible return to developers.

*Quality Managers:* They are responsible for the final quality of the product and ensures that the project is implemented according to the defined processes.

Thus, in the predictive model, all the phases are cascaded to each other in which progress is seen as flowing steadily downwards (like a waterfall) through the phases. The next phase is started only after the defined set of goals are achieved for the previous phase by their respective team members.